Gateway

Vol. 2, No. 21
June 13, 1986

The ARRL Packet-Radio Newsletter

CENTRAL CALIFORNIA PACKET

The Central California Coastal group received a treat on the weekend of May 10th: KB6KUG and WB6DFU provided temporary digipeating from their automobile, complete with a Commodore 64 aboard. The Cuesta Peak effort resulted in many coastal bound TNCs checking into the network for the first time. Two weeks later, WD6Z provided 145.01 MHz coverage from the same peak. The digipeater remains in operation. The weekend of May 24th, keynoted a digipeater organization organizational meeting at Atascadero Park, in which the Central California Relay Society opted to sponsor a permanent digipeater as part of the ARES effort to permanently link to Sacramento, replacing the WD6Z-1 unit. In addition, it was agreed to use 146.36 MHz simplex as a local digipeating frequency similar to Santa Barbara whenever possible, and within line of sight.

From W6HDO

HEATH DISCONTINUES DISTRIBUTION OF WA8DED CODE

In a recent issue of Gateway, we reported that the Heath company was giving away, free of charge, copies of the WA8DED TNC code to any of their HD-4040 customers for simply sending Heath the original invoice as proof of purchase. However, a recent series of events has left Heath unable to continue this practice, and the project has been abandoned.

According to Mr Wayne Wilson, the Product Line Manager for Amateur Radio Products at Heath, the project was discontinued after learning that Ron Raikes, WA8DED, author of the well known "DED" code was requesting a royalty payment for each copy of the code distributed. Apparently, Heath was not able to reach Mr Raikes in time to receive his consent to distribute the code before the latest Heath catalogue went to press. According to Mr Wilson, Heath was under the understanding that the software, while copyrighted, had been placed in the public domain by Mr Raikes. "We had apparently misinterpreted his (WA8DED) intent to give away the software. Our intent was to help Mr Raikes distribute it."

Ron Raikes, WA8DED, also spoke to Gateway regarding the matter. According to Mr Raikes, owner of Software 2000 in Downey CA, a company that writes network operating systems, the code was meant to be distributed free of charge for "nonprofit, noncommercial, amateur use." Mr Raikes felt that the Heath venture did not fit the bill of a nonprofit organization even though Heath was not charging its customers for the software.

Accordingly, Heath will pay Mr Raikes an undisclosed amount of cash for copies of the software distributed thus far.

From WA2FTC

TAPR RELEASES PACKET-RADIO VIDEO TAPE

A 30-minute color video tape aimed at providing a basic understanding of packet radio has been recently released by TAPR. The video entitled "Packet Radio" was written by Lyle Johnson, WA7GXD, President of TAPR and Pete Eaton, WB9FLW, Vice president of TAPR. The script seems to flow nicely, and give a fairly comprehensive overview of the history of packet radio.

Included in the tape, is a mention of preamateur development of packet radio such as the University of Hawaii ALOHA net as well as early amateur Canadian involvement.

Other topics touched on in the 30-minute tutorial are:

- o Digitized pictures and voice
- o Permissible baud rates on various frequencies
- o AX.25 protocol
- o packet frames
- o Equipment needed to get on packet
- o TNC 1 and TNC 2
- o Basic packet operation
- o Digipeaters
- o Networking
- o Bulletin Boards
- o High-speed digital radios and modems
- o Packet satellites

If the intent of the tape is to provide a basic understanding of packet radio, then Lyle and Pete have accomplished their goal. The tape, narrated by Pete Eaton, moves along at a brisk enough pace to keep the viewer from becoming bored, but is structured in such a way, that prevents the

packet-radio neophyte from becoming lost in a sea of technobabble. However, keep in mind that the tape runs a full 30 minutes, and unless one is serious about learning the basics of packet radio, the presentation may seem a bit too long. Perhaps the large amount of subject matter covered could have been shortened slightly.

If you have been on packet for even a short while, then "Packet Radio" has little to offer. On the other hand, if your intent is to spread the packet gospel, then "Packet Radio" should be part of your standard equipment. While it won't receive any awards for cinematography, "Packet Radio" is the best teaching tool I've seen thus far.

Ed.

COMMODORE SOFTWARE FOR PACKET RADIO

Commodore 64 users who are interested in exchanging programs via packet radio are invited to sample some public-domain file-transfer software by Warren Flynn, WB4ZOJ. This program, written in BASIC, will be distributed on a no-cost disk-exchange basis. To get a copy of the program, send a disk to Warren as follows:

1. send your disk in a STIFF, REUSABLE mailer.

2. enclose sufficient return postage.

3. The disk you send does not have to be formatted.

All disks should be sent to:

Warren Flynn WB4ZOJ
80 Brett Lane
Temple, Georgia 30179

From WB4ZOJ

CHICAGO PACKET

At the May 10th CAPRA meeting, it was reported that the test link between Naperville and Chicago is reliable at 4800 bauds. TCP/IP code has been compiled but several system functions need to be created in order to complete linking of the modules. A DMA/HDLC board is being designed to provide two channels for the linking hardware. We are also proceeding with an attempt to get a dual-port digipeater link in place between Chicago and Milwaukee as a precursor to the linking hardware. This is to be a cooperative effort between CAPRA and WAPR. The next CAPRA social will be held on a Wednesday sometime in July or August. Plans are being pursued to start a voice net, perhaps on the WCRA repeater, following one of their regularly scheduled nets. This net is intended as a question and answer session on packet radio. The program consisted on a discussion of things seen and heard at the recent Dayton Hamfest.

Via K9NG

TNC 2 SOFTWARE RELEASE 1.1.3

The latest software release for the TAPR TNC 2 is 1.1.3. Software updates are available from the TAPR office. Send in your old 27C256 EPROM in antistatic foam in a small carton with $2 for programming and return postage. EPROMS improperly packaged will not be returned.

Or, if you prefer to stay on the air, send $10 for a new, preprogrammed EPROM.

Listed below are the changes made to the TNC-2 firmware in versions 1.1.2 and 1.1.3. For each version, the changes are listed as "fixes," which correct an aspect of the firmware that operated improperly, "changes," which are make an existing feature operate slightly differently from the previous version, and "additions," which are new features of the firmware. From this, you can decide whether you need to upgrade to a newer firmware version. You can also see if there is a known bug in the firmware you are using!

SOFTWARE RELEASE 1.1.2.

FIXES

- o Flow release causing data loss of xmit data
- o Anomalous disconnect when in S16 link state
- o Retry-out handling when version 2 of AX25L2 works like table now
- o ID doubling fixed (I think -- could not dupe the bug here)
- o Sluggish carrier detect repaired, the TNC is much friendlier to other stations now
- o Monitor headers aren't displayed for received data from a link when MCON ON and MON ON
- o NULLS are handled in int routines, all combinations supported w/o loss
- o CTEXT packetized at connect time instead of traveling through the queues
- o NULL artifact from true-break transparent escape is now captured
- o rare corruption of data with "cmd:" repaired
- o 10 second timers (BEACON, CHECK) work at 10 sec intervals now
- o and finally, a very troubling intermittent that caused innumerable problems like more loss of link state, strange stuff in cmd parameters etc.

CHANGES

- o ©Y handled much faster (inside async int routine)
- o UA responses while in link setup mode are IGNORED if they differ from the attempted path
- o Number-only calls allowed to support links to AX.121NA switches...
- o The date of assembly (mm/dd/yy) appended to the

release number

ex: Release 1.1.2 12/03/85 - 16K RAM

o Interrupt handling speeded up at least two times. Support for 9600 both sides, FULLDUP is guaranteed with standard (2.45 MHz clock). Support for 19.2 kbaud also assured with appropriate hardware mods for 4.9 MHz and faster I/O clocks.

(My tests used two TNC 2s, both running 9600 sync and async, FULLDUP ON MAX 7 PACL 0 in TRANS and CONV mode (ECHO ON and OFF) could not drop characters thru a link of six fulldup digipeaters and a 28K file.)

Releases prior to 1.1.2 are NOT guaranteed for 9600 bauds, and should not be relied upon in any mode at this data rate!

o The overflow buffer expanded to 256 characters (overflow after XOFF sent)

ADDITIONS

o LCSTREAM command

o NOMODE command

o Failure of a CONPERMed link results in a

"*** LINK OUT OF ORDER, possible data loss [opt. daytime stamp]" message.

SOFTWARE RELEASE 1.1.3

FIXES

o When AX25L2V2 is ON, the TNC now answers L2 UI frames with P and C set with either: RR if connected (regardless of rcvr flow control state), or DM if not connected.

o Path for SABM received while in link-setup state is not checked. This corrects earlier operation where a self-connect via an odd number of different digipeaters fails.

o T2 <RESPTIME> utilization corrected for the 2nd through nth link

o FULLDUP operation restored

o Channel capture during busy times improved

o NOMODE bug, where the 'connect mode' setting was not used on received SABMS has been corrected. This bug may have caused the TNC to enter a state where it seemed like the TNC died, when it actually was in TRANSparent mode.

CHANGES

o BEACONS not sent if BTEXT is null

o RESPTIME default now at 5; i.e. 500ms

ADDITIONS

o RXBLOCK command

o TNC "Health" feature group installed

Fourteen counters have been added to TNC 2. All of them are 16 bits wide, and are ALWAYS initialized to 0000 on power up or "RESTART".

o ASYRXOVR: Increases when the software does not service the asynchronous receiver in time. Indicates data from the user to the TNC is being dropped. This error counter should never become non-zero under supported data rates.

o DIGISENT: Each frame digipeated by this TNC causes the counter to increase.

o HOVRERR: Increases when HDLC receiver is not serviced rapidly enough and data is lost. This counter should never increment at any supported data rate.

o HUNDRERR: Increases when the HDLC transmitter is not serviced rapidly enough and frames are aborted. This counter should never be non-zero at any supported data rate.

o RCVDFRMR: Increases when fame-reject frames are received from a connected station.

o RCVDIFRA:Increases for each reception of an I frame from a connect.

o RCVDREJ: Increases for each reception of an REJect frame from a connect.

o RCVDSABM: Each received SABM frame addressed to the TNC causes this counter to be increased by one.

o RXCOUNT: Increases when any frame is received with good CRC (or any CRC if HGARBAGE is turned on).

o RXERRORS: Increments each time a received frame is thrown out due to it being too short, suffering overrun(s), or it having a bad CRC. Latter occurs only when CRC checking is enabled (ie HGARBAGE is OFF). This counter will often increment in the presence of noise.

o SENTFRMR: Increments each time a frame-reject frame is transmitted.

o SENTIFRA: Increases by one each time an I frame is sent.

o SENTREJ: Whenever a REJect frame is transmitted, this counter is incremented.

o TXCOUNT: Incremented whenever a frame is correctly transmitted.

The following information should be inserted into the DISPLAY command.

DISPLAY HEALTH

The counters just described, and the setting of HEALLED are displayed in response to the health inquiry.

From WA7GXD

Lack of space in this issue prohibits us from printing the entire text of the TNC 2 Software notes. The next issue of Gateway will carry the remainder of the notes. -- Ed.

CONNECTIONLESS PROTOCOL DEVELOPMENT

The November 1985 Simulated Emergency Test (SET) demonstrated a need for a connectionless protocol for emergency traffic handling. To meet that need, Bob Bruninga, WB4APR, is developing such a protocol for use with a standard TNC. Although the system could be implemented on any computer, Bob is using a Commodore C-64 as the basis for his implementation. The user sees a display that appears as a standard (WORLI) packet bulletin board system. The operator can list, read, print and kill the messages. The system is described in the January 1986 AMRAD Newsletter. After field testing in July, AMRAD will make the software available to the packet community.

From the AMRAD Newsletter

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Gateway: The ARRL Packet Radio Newsletter is published by the

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225 Main Street
Newington, CT 06111

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Subscriptions are available to ARRL members and nonmembers, at the following rates:

For 25 issues of Gateway:
In the U.S.
ARRL Member $6.00
Nonmember $9.00
In U.S., Canada, and Mexico by First Class Mail
ARRL Member $11.00
Nonmember $14.00
Elsewhere by Airmail
ARRL Member $14.00
Nonmember $17.00.

Prices are subject to change without notice. Remittance must be in U.S. funds, and checks must be drawn on a bank in the U.S.

Gateway: The ARRL
Packet Radio Newsletter
American Radio Relay League
225 Main St.
Newington, CT 06111

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